

## ABSTRACT

To make it possible to generate a PWM signal having a high degree of freedom of a percentage modulation and preventing excessive deterioration of efficiency with a simple method without adding a special device. A PWM-signal-duty creating unit 22 produces two kinds of basic voltage vectors having a phase difference of 60 degrees and at least one kind of a zero vector with a method same as the conventional method. A PWM-signal-duty redistributing unit 23 distributes, using three kinds of vectors with equal lengths having phase differences of 120 degrees, respectively, constituting a zero vector corresponding to a voltage command vector  $V^*$ , a production time ratio of the zero vector to three kinds of basic voltage vectors, which include a basic voltage vector located on a rear end side of an inverter rotation direction among the two kinds of basic voltage vectors having a phase difference of 60 degrees and have phase differences of 120 degrees, respectively, and produces, based on the production time ratio, three kinds of basic voltage vectors having phase differences of 60 degrees, respectively, and one kind of a zero vector.